Grade Levels 4-8
45-90 Minutes

Grade Level Texas Essential Knowledge and Skills (TEKS) by Content Area:

English Language Arts {2008}

Grade 4: 1; 2E; 9; 11C; 13B; 15A; B; C; D; E; 18A; C; 20A; 23A; 23B; 24A; E; 25; 26; 27A; B; 28; 29

Grade 5: 1; 2E; 9; 11A; B; C; D; E; 13A; B; 15A; B; C; D; E; 17; 18A; B; C; 20A; 23A; B; 24C; 25A; B; 26A; B; C; D; 27A; 28; 29

Grade 6: 1; 2E; 12A; B; 14A; B; C; D; E; 17A; 18; 19A; 20A; B; 22A; B; 23A; C; 24A; B; 25A; B; C; 26A; B; C

Grade 7: 1; 2E; 12A; B; 14A; B; C; D; E; 17A; 18A; B; C; 19A; 20A; B; 21; 22A; B; 23A; B; C; D; 24A; 25A; B; C; 26A; C; 27; 28

Grade 8: 1; 2E; 12A; B; 14A; B; C; D; E; 17A; 18A; B; C; 19A; 20A; B; 21; 22A; B; 23A; B; C; D; 24A; 25A; B; C; 26A; B; C; 27; 28

Mathematics

Grade 4: 4.13A; B; C; D; 4.15A; 4.16A

Grade 5: 5.13A; B; C; 5.14A; B; C; 5.15A; B; 5.16A; B

Grade 6: 6.8A; B; 6.9A; B; 6.10A; B; C; D; 6.11A; B; C; D; 6.12A; B; 6.13A; B

Grade 7: 7.5A; B; 7.10A; B; 7.11A; B; 7.12A; B; 7.13A; B; C; D; 7.14A; B; 7.15A; B

Grade 8: 8.5A; B; 8.6A; B; 8.7A; B; C; D; 8.8C; 8.11A; B; C; 8.12A; B; C; 8.13A; B; 8.14A; B; C; 8.15A; B; 8.16A; B

Science {2009}

Grade 4: 1A; B; 2A; B; C; D; E; F; 3A; 4A; B; 7C

Grade 5: 1A; B; 2A; B; C; D; E; F; G; 3A; 4A; B; 8B; 9C

Grade 6: 1A; B; 2A; B; C; D; E; 3A; 4A; B

Grade 7: 1A; B; 2A; B; C; D; E; 3A; 4A; B; 8C; 10B

Grade 8: 1A; B; 2A; B; C; D; E; 3A; 4A; B; 11C; D

Taking Action

Overview

Students analyze data from a beach scenario, plan a presentation, decide on actions for improving the health of the beach and present their projects.

Objectives

- Analyze data to reach conclusions.
- Develop plans for those conclusions.
- Identify and role-play the participants in beach health scenarios.

Prerequisites

Units 3 and 4. This activity can be done in conjunction with unit 5 to help students practice data analysis.

Vocabulary

E. coli
bacteria (*Escherichia coli*) occurring in various strains, and living as harmless inhabitants of the human lower intestine, are used in public health as indicators of fecal pollution, or can produce an intestinal illness.

bacteria
single-celled micro-organisms that live in soil, water, organic matter, or the bodies of plants and animals and are important because of their role in food webs and as a cause of disease.

stormwater
water that accumulates on the ground during a rain event.

Setting

Indoors

Materials

- **data chart** *(on Journal Pages 3, 4 and 5)*
- **pencils**

Background

Collecting data can be an interesting and worthwhile endeavor for students. However, the real interest and potential for critical thinking is in understanding what the data means. This activity allows students to practice analyzing and synthesizing data relating to beach health. When done in conjunction with the Adopt-A-Beach (Unit 5), this activity can serve as a way to get students to interpret data and understand how to look for trends and possible cause-and-effect relationships in information.

Activity

1. Give the students the following scenario: A local middle school has adopted a nearby beach. The students have made four visits throughout the fall and spring looking at the shoreline and surrounding area, the type and amount of litter, and the presence of E. coli bacteria. They are ready to analyze their data and create an action plan to create positive change at their beach. Where should they start?
2. Give the students the data in the journal pages. Data on litter and water quality was collected each time, on separate charts. Have them compare the visits based on the data and use the journal questions to make note of their observations. As a class, discuss the data. This may include noticing problems with overflowing trash cans, consistent seagull waste and a possible sewage overflow on the second visit.
3. Introduce the idea of taking action to help the beach. Divide students into groups and have each group pick one problem on which to focus their attention. Problems might include overflowing trash cans, consistent seagull waste, possible sewage overflows, lack of educational signage, and storm water runoff from the paved parking lot. What types of projects can students create that will address these issues?
4. Have students develop an action project to address the issue, including a presentation of results to each other in "roles" as city officials.

Wrap Up

1. Ask each group to take turns presenting its action project while the other group role-plays the group hearing the results.
2. After both groups have presented, evaluate the presentations. Did the students prefer presenting or hearing the presentation? What did the other group do well? What could they do better? If your classroom were to arrange an actual meeting, what other things should be considered?

Extension

1. Students take results from the Adopt-A-Beach (Unit 5) or the Garbage Investigation (Unit 3) lessons and create an action plan to help their beach.
2. Use this activity as a model for presenting actual data to community decision-makers.
3. Have the class participate in a Texas General Land Office Adopt-A-Beach Program cleanup event.

The Texas General Land Office values your thoughts and feedback. Please provide information about any oversights, errors or omissions, as well as particular activities that students find interesting. Send comments to the Texas General Land Office Adopt-A-Beach Program at **beach@glo.texas.gov**.

Adapted with permission from **Great Lakes in My World**, *a lesson plan created by the Alliance for the Great Lakes.*

Name:_____ **Date** _____

Unit 6 | "Taking Action" Journal Pages

Help! The following data has been collected at a beach nearby. The students who collected it need help figuring out what it all means.

The Results: In additional data, it was noted that the trash cans were overflowing, had no lids and there were no recycling containers. The trash cans are located near the beach entrance. There is no designated eating area. There are no signs about the problems that litter creates on a beach. The parking is on a paved lot, 100 yards from the beach. There is no border between the parking lot and beach sand. The local park district is responsible for maintaining this beach.

Litter Monitoring

	First Visit 9/22	Second Visit 10/14	Third Visit 4/22	Fourth Visit 5/14
weather	sunny	rainy	sunny, windy	partly cloudy
air temp	82	68	64	72
number of beach users	51-200	1-50	51-200	51-200
amount of litter on beach	relatively clean	not very clean	dirty, lots of litter	relatively clean
condition of trash cans	overflowing	--	overflowing	--
dogs present, leashed?	Yes, all on leashes	Yes, all on leashes	Yes, some not leashed	Yes, some not leashed
animal waste present, type?	seagull	seagull	seagull, dog	seagull
water smell strange?	no	yes, raw sewage	no	no
condition of restrooms	very clean	locked	locked	dirty walls/buildings
number of cigarette butts	124	74	223	62
number of food wrappers	79	112	57	123
number of aluminum cans	12	16	8	10
number of glass bottles	5	24	6	12

Name:_____ **Date** _____

Unit 6 | "Taking Action" Journal Pages

Water Monitoring

	First Visit 9/22	Second Visit 10/14	Third Visit 4/22	Fourth Visit 5/14
weather	sunny	rainy	sunny, windy	partly cloudy
number of beach users	50-100	1-20	50-100	100-200
number of toddlers	1-20	0	1-20	21-49
number of seagulls	1-20	1-20	21-49	1-20
number of pelicans	0	1-20	0	0
water smell strange?	no	yes, raw sewage	no	no
date of last precipitation	9/3	10/13	4/19	4/30
E. coli count	3 colonies	12 colonies	6 colonies	10 colonies
other coliform	14 colonies	32 colonies	11 colonies	17 colonies

PART ONE: LOOKING AT THE DATA

1. What observations can you make based on this data?

2. What problems might be indicated by the data?

3. What suggestions do you have for helping this beach become a healthier place?

Name:_____ **Date** _____

Unit 6 | "Taking Action" Journal Pages

PART TWO: HELPING OUT

1. What beach problem is your group working to solve?

2. How will you present this "action project" to the class?

3. What is your plan or "action project" for addressing this issue?

PART THREE: PRESENTATION FOLLOW-UP

1. Did you prefer presenting or hearing the presentation? Why?

2. What did your group do well?

3. What could your group have done better?